

22nd IAA SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE EXPLORATION AND
DEVELOPMENT (D3)Interactive Presentations - 22nd IAA SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE
EXPLORATION AND DEVELOPMENT (IP)

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A LUNG SYSTEM FOR THE MARTIAN SHAPE-SHIFTER

Abstract

The human quest for expanding boundaries to create a better living environment has led to contemplating extraterrestrials, while human determination persists in pushing the boundaries to create a better living environment. However, this noble pursuit is confronted by numerous challenges, with pollution emerging as a significant adversary, making Earth a difficult place to inhabit. To respond to these challenges, the human quest for a sustainable future has turned towards the cosmos, recognizing the enormity of space as a potential canvas for innovation and discovery that could captivate not only contemporary billions but potentially spanning millennia. The accuracy of the water traces obtained by scientists today from their research on Mars was enough to shake the scientific world. Based on this, the number of studies was expanded, and even pushing the limits of the human mind, it was demonstrated that trips to Mars could be organized one day. Of course, architecture, which nourishes human health and psychology with the magnificent harmony of physics and chemistry, will not refrain from offering its contributions. What if we propose to present the idea of a lively shelter in this hectic pace? Thanks to this mobility, solutions can be found to fundamental problems that cause us difficulties, such as air mass and limited energy resources. Although the unique "lung system" we will offer to keep the internal oxygen flow under control and store it may sound complicated, it will yield very useful results. Placing the storage area under the shelter's area will make it susceptible to possible problems, and will also reduce radiation to the maximum level with the help of its floor. A centralized air distribution system will be used to ensure the distribution, processing, and re-storage of oxygen in the interior space. The installation of this 3D-printed shelter system should be designed in such a way that the rail system that will support it will completely disconnect from the outside, and the emotional state of the person should not be forgotten while aiming for this. In summary, we will commit to transforming these ideas into a real, usable shelter. By combining scientific knowledge with an understanding of human needs, the innovative shelter system aims not only to enhance the human experience on Mars but support life on the Red Planet. This vision signals we can dream of a new world and actively form it with empathy for those who will call it home